

Print
DEPARTMENT OF THE ARMY TECHNICAL MANUAL

DEPARTMENT OF THE AIR FORCE TECHNICAL ORDER

TM 11-5830-200-10
TO 31S3-3 MC364-21

OPERATOR'S MANUAL
REPRODUCING
EQUIPMENT MC-364-D
AND PUBLIC ADDRESS
SET AN/UIH-2



DEPARTMENTS OF THE ARMY AND THE AIR FORCE
AUGUST 1958

Book #15

WARNING

HIGH VOLTAGE

is used in this equipment

DEATH ON CONTACT

may result if safety precautions are
not observed.

When making repairs, be sure that no power is applied to the equipment.

TECHNICAL MANUAL
No. 11-5830-200-10 }
TECHNICAL ORDER
No. 31S3-3 MC364-21 }

DEPARTMENTS OF THE ARMY
AND THE AIR FORCE

WASHINGTON 25, D. C., 11 August 1958

REPRODUCING EQUIPMENT MC-364-D AND PUBLIC ADDRESS SET AN/UIH-2

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* This manual supersedes so much of TM 11-436, 9 September 1947, and C 2, 9 March 1954, as pertains to operating instructions.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. This manual describes Reproducing Equipment MC-364-D and Public Address Set AN/UIH-2 and covers operation and operator's maintenance. It includes operation under usual and unusual conditions, cleaning and inspection of the equipment, and replacement of parts available to first echelon maintenance.

b. Official nomenclature followed by (*) is used to indicate all models of the equipment covered in this manual. Thus, Sound Reproducer RP-104(*)/UIH-2 represents Sound Reproducers RP-104/UIH-2 and RP-104A/UIH-2.

c. The following supply manuals contain maintenance parts information pertaining to this manual:

SIG 7 & 8 AN/UIH-2 Public Address Set AN/UIH-2.

SIG 7 & 8 LS-148/U. Loudspeaker Assembly LS-148/U.

SIG 7 & 8 MC-364... Reproducing Equipment MC-364-A, B, C, D.

SIG 7 & 8 MX-932/U Turntable MX-932/U.

d. The terms listed below are used herein.

Disk ----- A complete phonograph record, or the blank used in a sound recorder.

Record ----- A commercial phonograph pressing. The term is also applied to instantaneous recording disks.

Transcription ----- An electrical recording, such as a high-fidelity $33\frac{1}{3}$ rpm record (usually 16 inches), containing part or all of a radio program for use in broadcast studios.

2. Forms and Records

a. *Unsatisfactory Equipment Reports.*

(1) Fill out and forward DA Form 468 (Unsatisfactory Equipment Report) to the Commanding Officer, U. S. Army Signal Equipment Support Agency, Fort Monmouth, N. J., as prescribed in AR 700-38.

(2) Fill out and forward AFTO Form 29 (Unsatisfactory Report) to the Commander, Air Materiel Command, Wright-Patterson Air Force Base, Ohio, as prescribed in AFTO 00-35D-54.

b. *Report of Damaged or Improper Shipment.* Fill out and forward DD Form 6, (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army) and AFR 71-4 (Air Force).

c. *Preventive Maintenance Forms.* Prepare DA Form 11-238 (figs. 8 and 9) (Maintenance Check List for Signal Equipment (Sound Equipment, Radio, Direction Finding Radar, Carrier, Radiosonde and Television)) in accordance with instructions on the form.

d. *Parts List Form.* Forward DA Form 2028 (Recommended Changes to DA Technical Manual Parts Lists or Supply Manuals 7, 8, and 9) direct to the Commanding Officer, U. S. Army Signal Equipment Support Agency, Fort Monmouth, N. J., for comments on parts listings.

e. *Comments on Manual.* Forward all other comments on this publication direct to the Commanding Officer, U. S. Army Signal Publications Agency, Fort Monmouth, N. J.

Section II. DESCRIPTION AND DATA

3. Purpose and Use

a. Purpose. The MC-364-D (fig. 1) and the AN/UIH-2 are portable sound reproducers that provide facilities for sound amplification either for entertainment purposes or, in conjunction with a film strip projector, for training purposes.

b. Use. Either equipment can be used as a sound reproducer, with a record as a source of sound; as a public address system, with a microphone as a source of sound; or as a mixer, with both a record and a microphone as sources of sound.

4. Technical Characteristics

a. Major Components (fig. 1).

Turntable MX-932/U:

Power requirements. 115 or 230 volts, 50 to 60 cps, single phase.

Power output -- 10 watts.

Maximum gain:

Microphone channel. 130 db.

Sound reproducer channel. Approximately 130 db.

Frequency response:

Microphone channel. 70 to 9,000 cps, ± 2 db variation.

Sound reproducer channel. 70 to 4,000 cps, ± 2 db variation.

Impedance:

Input, microphone channel. 50 ohms.

Input, sound reproducer channel. Approximately 3 megohms.

Output ---- 3.4 ohms.

Turntable motor:

Type ---- Single-phase, shaded-pole, ac, induction.

Speed (looking at load end). $33\frac{1}{3}$ and 78 rpm.

Sound reproducer cartridge. Crystal-type, high temperature, cutoff frequency 4,000 cps, with standard groove reproducing stylus.

Number of electron tubes. 5.

Reproducing medium:

Type ---- Disk (record).

Disk size --- 10, 12, or 16 inches in diameter.

Reproducing time:

10-inch disk:

$31\frac{1}{3}$ rpm 6½ minutes each side.

78 rpm 3 minutes each side.

12-inch disk:

$33\frac{1}{3}$ rpm 8½ minutes each side.

78 rpm 4 minutes each side.

16-inch disk:

$33\frac{1}{3}$ rpm 13 minutes each side.

78 rpm 6 minutes each side.

Sound Reproducer RP-104(*)/UIH-2:

Power requirements. 115 or 230 volts, 50 to 60 cps, single phase.

Power output -- 10 watts.

Maximum gain:

Microphone channel. 130 db.

Sound reproducer channel. Approximately 130 db.

Frequency response:

Microphone channel. 70 to 9,000 cps, ± 2 db variation.

Sound reproducer channel. 70 to 3,000 cps, ± 2 db variation.

Impedance:

Input, microphone channel. 50 ohms.

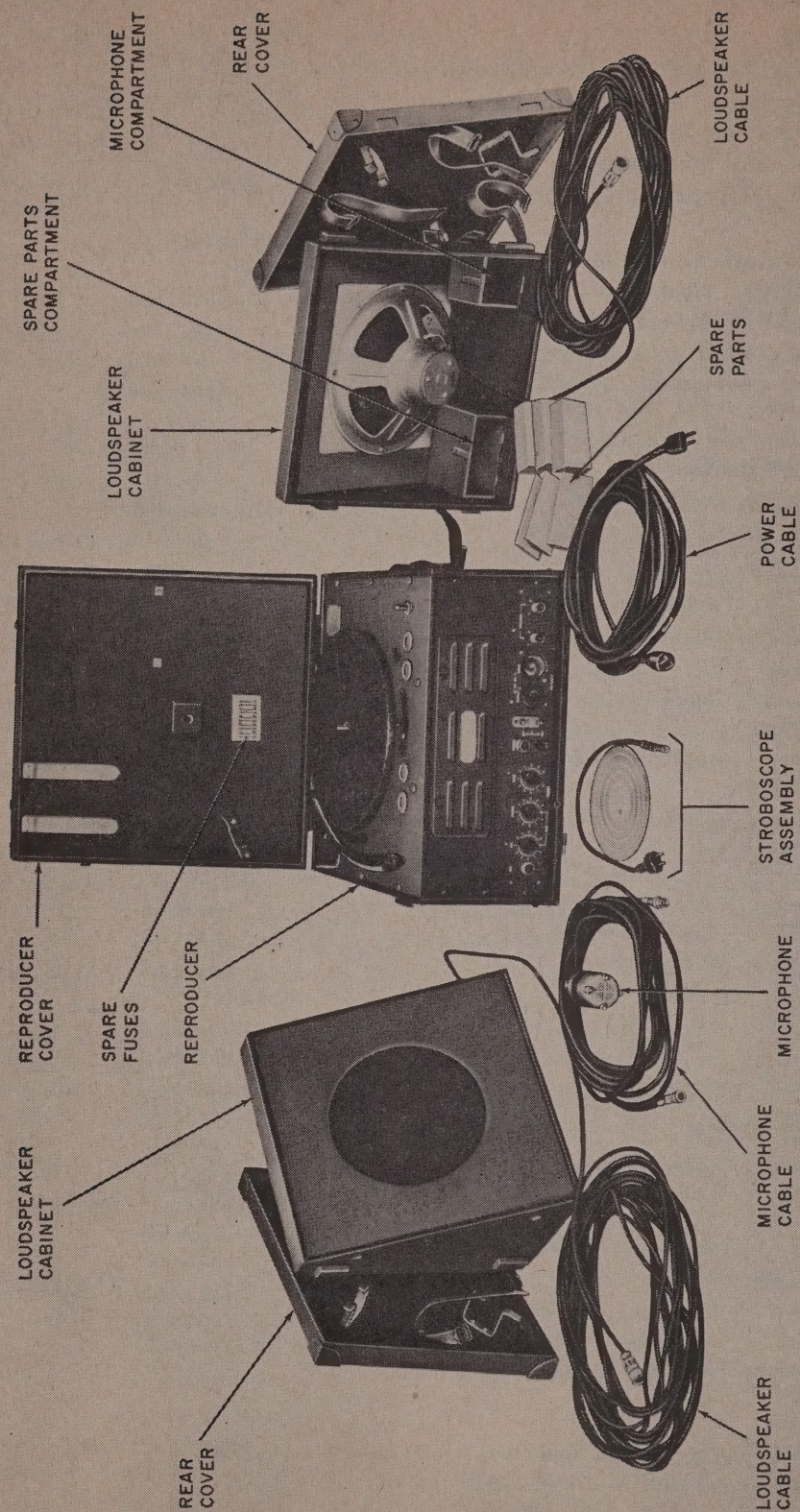
Input, sound reproducer channel. Approximately 3 megohms.

Output ---- 3 ohms.

Turntable motor:

Type ---- Single-phase, shaded-pole, ac, induction.

Speed (looking at load end). $33\frac{1}{3}$, 45, and 78 rpm.



TM436-10-5

Figure 1. Public address set, component parts.

Sound reproducer cartridge. Ceramic-type, cutoff frequency, 3,000 cps, turn-over - type cartridge, removable microgroove reproducing stylus on one side, standard groove reproducing stylus on other side.

Number of electron tubes. 5.

Reproducing medium:

Type ----- Disk (record).

Disk size --- 7, 10, 12, or 16 inches in diameter.

Reproducing time:

Standard groove:

10-inch disk:
33 $\frac{1}{3}$ rpm 6 $\frac{1}{2}$ minutes each side.
78 rpm 3 minutes each side.

12-inch disk:
33 $\frac{1}{3}$ rpm 8 $\frac{1}{2}$ minutes each side.
78 rpm 4 minutes each side.

16-inch disk:
33 $\frac{1}{3}$ rpm 13 minutes each side.
78 rpm 6 minutes each side.

Microgroove:

7-inch disk, 45 rpm 7 minutes each side.
10-inch disk, 33 $\frac{1}{3}$ rpm 13 minutes each side.
12-inch disk, 33 $\frac{1}{3}$ rpm 17 $\frac{1}{2}$ minutes each side.
Micro-groove extended play, 45 rpm 10 $\frac{1}{2}$ minutes each side.

b. Minor Components (figs. 2 and 3).

Dynamic Microphone M-23/U:

Type ----- Dynamic, unidirectional.
Frequency response. 60 to 7,500 cps.
Output impedance. 30 to 50 ohms.

Dynamic Microphone M-43/U:

Type ----- Dynamic, omnidirectional.
Frequency response. 150 to 4,500 cps.
Output impedance. 150 ohms.

Loudspeaker Assembly LS-148/U:

Number of loudspeakers. 2.
Type ----- Dynamic, permanent magnet.
Frequency response. 80 to 5,000 cps.
Output power (peak). 6 watts.
Input impedance. 3.2 ohms.

Interconnecting cables 4.

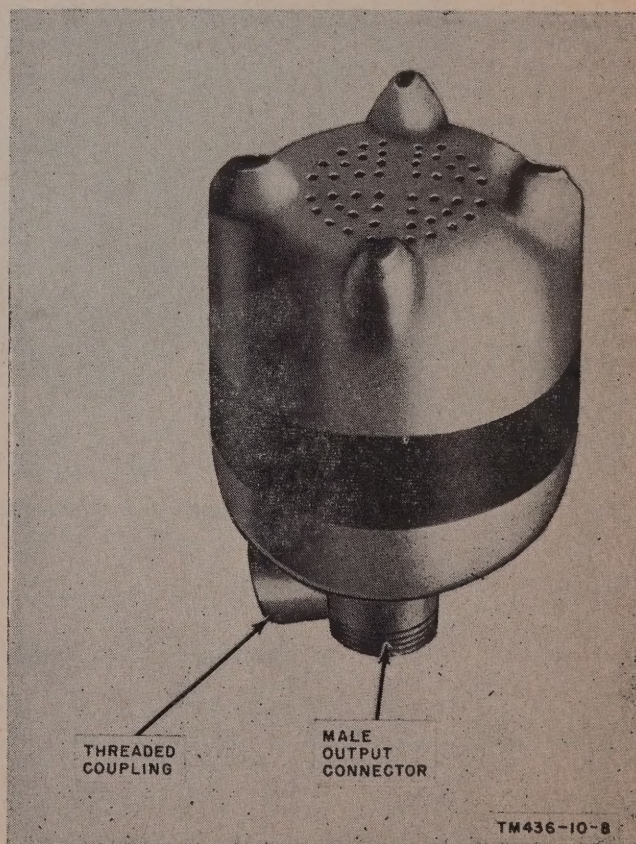


Figure 2. Dynamic Microphone M-23/U.

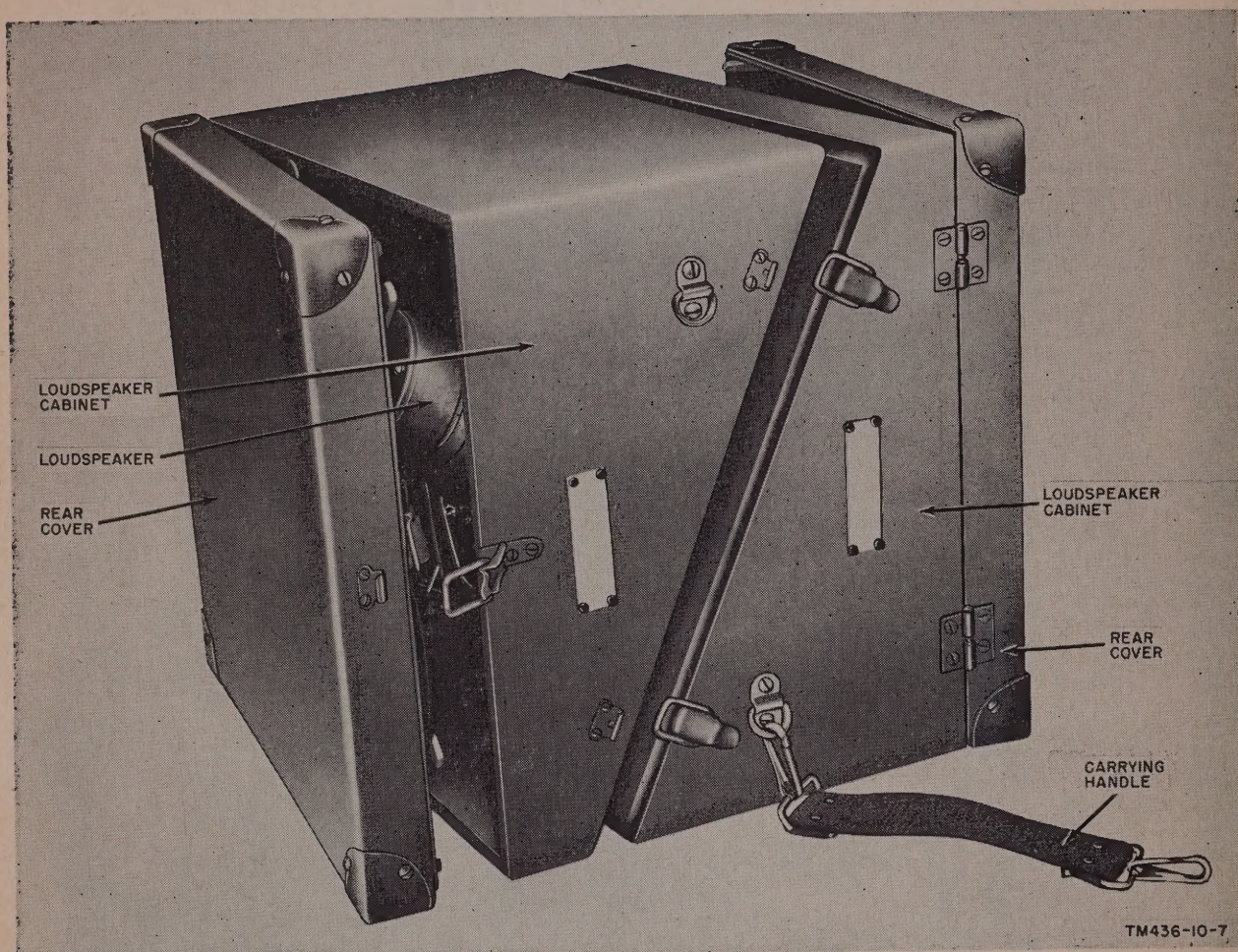


Figure 3. Loudspeaker Assembly LS-148/U.

5. Table of Components (fig. 1)

The components of Reproducing Equipment

MC-364-D and Public Address Set AN/UIH-2
are listed in *a* below, and the spare parts in *b*
below:

a. Components.

MC-364-D	AN/UIH-2	Quantity	Component	Dimensions (in.)	Weight (lb)
(*)		1	Turntable MX-932/U -----	19 $\frac{3}{8}$ x 19 x 11 -----	46
	(*)	1	Sound Reproducer RP-104(*)/UIH-2.	19 $\frac{3}{16}$ x 19 $\frac{3}{8}$ x 9 -----	61
(*)	(*)	1	Dynamic Microphone M-23/U ---	4 $\frac{3}{16}$ long x 2 $\frac{1}{16}$ dia.	
		1	or Dynamic Microphone M-43/U ---	3 $\frac{15}{16}$ long x 2 $\frac{1}{16}$ dia.	
(*)	(*)	1	Loudspeaker Assembly LS-148/U, consisting of: 2 ea loudspeaker cabinet and cover. 2 ea Power Cable Assembly CX-1235/U.	16 $\frac{1}{4}$ x 14 $\frac{5}{8}$ x 14 $\frac{1}{4}$ ----- 50 feet long.	42
(*)	(*)	1	Reproducing stylus, standard groove.		
(*)	(*)	1	Sound reproducer cartridge -----		
(*)	(*)	1	Special Purpose Cable CX-1207/U.	25 feet long.	
		1	or Special Purpose Cable CX-2150/U.	25 feet long.	
(*)	(*)	1	Stroboscope assembly, consisting of: 1 ea stroboscope ----- 1 ea stroboscope disk -----	25 long. 2 $\frac{1}{2}$ dia.	
(*)		1	Electrical power cable assembly--	25 feet long.	
	(*)	1	Adapter, 45 rpm -----	1 $\frac{3}{4}$ dia.	
	(*)	1	Power Cable Assembly CX-1208/U.	25 feet long.	
	(*)	1	Reproducing stylus, microgroove--	.	
	(*)	1	Wrench, socket head screw -----	2 $\frac{1}{8}$ long.	
(*)	(*)	1 set	Spare parts (<i>b</i> below)-----		

b. Spare Parts.

MC-364 -D	AN /UIH-2	Quantity	Item
		11	Adapter, 45 rpm (Federal stock No. 5935-392-9573).
(*)	(*)	1	Electron tube type 5Y3WGTA.
(*)	(*)	1	Electron tube type 6SL7WGT.
(*)	(*)	1	Electron tube type 6V6GT.
(*)	(*)	5	Cartridge fuse, 5-ampere (Federal stock No. 5920-221-4519).
(*)	(*)	1	Lamp LM-52 (Federal stock No. 6240-144-8706).
	(*)	1	Sound reproducer cartridge (Federal stock No. 5835-503-2560).
	(*)	1	Reproducing stylus, micro-groove (Federal stock No. 5835-503-2610).
	(*)	1	Reproducing stylus, standard groove (Federal stock No. 5835-545-8219).
(*)		1	Reproducing stylus, standard groove (Federal stock No. 5834-170-4808).

6. Common Names

Nomenclature	Common name
Reproducing Equipment MC-364-D or Public Address Set AN/UIH-2.	Public address set.
Turntable MX-932/U or Sound Reproducer RP-104(*)/UIH-2.	Reproducer.
Dynamic Microphone M-23/U or Dynamic Microphone M-43/U.	Microphone.
Loudspeaker Assembly LS-148/U.	Loudspeaker assembly.
Power Cable Assembly CX-1235/U.	Loudspeaker cable.

Nomenclature	Common name
Electrical power cable assembly (MC-364-D) or Power Cable Assembly CX-1208/U (AN/UIH-2).	Power cable.
Special Purpose Cable CX-1207/U or Special Purpose Cable CX-2150/U.	Microphone cable.
Sound reproducer cartridge ---	Cartridge.

7. Description of Public Address Set

The public address set consists of a reproducer (*a* below) and the minor components (*b* below) required for public address type reproduction of recorded information or for amplifying speech.

a. Reproducer (fig. 1). The front and top of the reproducer can be reached by raising the hinged lid. The connectors and some operating controls and switches are located on the front of the reproducer. The turntable, the sound reproducer arm (pick-up arm), and the balance of the controls and switches are located on top of the reproducer.

b. Minor Components.

- (1) *Microphone* (fig. 2). The microphone (housed in the microphone compartment of the loudspeaker assembly) has a connector to accommodate the microphone cable connector ((3) below). The base of the microphone has a threaded coupling so that the unit can be mounted on a stand.
- (2) *Loudspeakers* (fig. 3). Each loudspeaker is housed in a section (cabinet) of the loudspeaker assembly case, and has two connectors to accommodate the loudspeaker cable connectors ((3) below).
- (3) *Cables* (fig. 1). Four cables are provided for interconnection of the equipment. The cables are stored in the covers of the loudspeaker assembly.
 - (a) *Loudspeaker cables*. The loudspeaker cables each are 50 feet long. Each cable has three connectors; two for connection to a loudspeaker and one for connection to the reproducer.

- (b) *Microphone cable.* The microphone cable is 25 feet long and has two connectors; one for connection to the microphone and one for connection to the reproducer.
- (c) *Power cable.* The power cable is 25 feet long and has two connectors; one for connections to the reproducer and one for connection to the source of power.

Note. The power cable supplied with the MX-932/U and the power cable supplied with the RP-104(*)/UIH-2 are not interchangeable.

8. Differences in Models

Reproducing Equipment MC-364-D and Public Address Set AN/UIH-2 are alike, except for minor differences in the reproducers. The following chart lists the differences:

Item	MX-932/U	RP-104/UIH-2	RP-104A/UIH-2
Turntable speeds -----	33 $\frac{1}{3}$ and 78 rpm -----	33 $\frac{1}{3}$, 45, and 78 rpm -----	33 $\frac{1}{3}$, 45, and 78 rpm -----
Sound reproducer cartridge	Crystal, one side pick-up--	Ceramic, turnover-type, two side pick-up.	Ceramic, turnover-type, two side pick-up.
Reproducing stylus -----	Standard groove -----	Standard groove and microgroove.	Standard groove and microgroove.
Speed controls -----	Lever-type controls -----	Lever-type controls -----	Knob-type controls.
Motor support -----	Motor support yoke secured by two wing nuts.	Motor support yoke secured by one wing nut.	Rubber shock mounts.
Power cable -----	Electrical power cable assembly.	Power Cable Assembly CX-1208/U.	Power Cable Assembly CX-1208/U.

CHAPTER 2

OPERATING INSTRUCTIONS

Note. Unpacking and installation of the public address set should be performed by second echelon personnel.

Section I. OPERATION UNDER USUAL CONDITIONS

9. Controls and Indicator

Only those controls and indicator which may be used by the operator are listed below. Do not change the position of the other controls or change any of the cable connections.

Control or indicator	Function								
POWER indicator (fig. 4).	When lighted, indicates power is applied to reproducer.								
MIC control -----	Controls volume of microphone channel.								
PHONO control -----	Controls volume of sound reproducer channel.								
TONE-POWER OFF control.	<table> <tr> <th>Position</th><th>Function</th></tr> <tr> <td>1 through 10</td><td>Controls tone of output signal.</td></tr> <tr> <td>1</td><td>Applies power to reproducer.</td></tr> <tr> <td>0</td><td>Disconnects power from reproducer.</td></tr> </table>	Position	Function	1 through 10	Controls tone of output signal.	1	Applies power to reproducer.	0	Disconnects power from reproducer.
Position	Function								
1 through 10	Controls tone of output signal.								
1	Applies power to reproducer.								
0	Disconnects power from reproducer.								
SPEED CHANGE control (MX-932/U) (fig. 5).	Two-position lever adjustment: <table> <tr> <th>Position</th><th>Function</th></tr> <tr> <td>33$\frac{1}{3}$ rpm</td><td>Operates turntable at 33$\frac{1}{3}$ rpm.</td></tr> <tr> <td>78 rpm</td><td>Operates turntable at 78 rpm.</td></tr> </table>	Position	Function	33 $\frac{1}{3}$ rpm	Operates turntable at 33 $\frac{1}{3}$ rpm.	78 rpm	Operates turntable at 78 rpm.		
Position	Function								
33 $\frac{1}{3}$ rpm	Operates turntable at 33 $\frac{1}{3}$ rpm.								
78 rpm	Operates turntable at 78 rpm.								
SPEED change control (RP-104/UIH-2) (fig. 6).	Three-position lever adjustment: <table> <tr> <th>Position</th><th>Function</th></tr> <tr> <td>33$\frac{1}{3}$ r.p.m.</td><td>Operates turntable at 33$\frac{1}{3}$ rpm.</td></tr> <tr> <td>45 r.p.m.</td><td>Operates turntable at 45 rpm.</td></tr> <tr> <td>78.26 r.p.m.</td><td>Operates turntable at 78 rpm.</td></tr> </table>	Position	Function	33 $\frac{1}{3}$ r.p.m.	Operates turntable at 33 $\frac{1}{3}$ rpm.	45 r.p.m.	Operates turntable at 45 rpm.	78.26 r.p.m.	Operates turntable at 78 rpm.
Position	Function								
33 $\frac{1}{3}$ r.p.m.	Operates turntable at 33 $\frac{1}{3}$ rpm.								
45 r.p.m.	Operates turntable at 45 rpm.								
78.26 r.p.m.	Operates turntable at 78 rpm.								

Control or indicator	Function								
Speed change control (RP-104A/UIH-2) (fig. 7).	Three-position rotary adjustment: <table> <tr> <th>Position</th><th>Function</th></tr> <tr> <td>33</td><td>Operates turntable at 33$\frac{1}{3}$ rpm.</td></tr> <tr> <td>45</td><td>Operates turntable at 45 rpm.</td></tr> <tr> <td>78</td><td>Operates turntable at 78 rpm.</td></tr> </table>	Position	Function	33	Operates turntable at 33 $\frac{1}{3}$ rpm.	45	Operates turntable at 45 rpm.	78	Operates turntable at 78 rpm.
Position	Function								
33	Operates turntable at 33 $\frac{1}{3}$ rpm.								
45	Operates turntable at 45 rpm.								
78	Operates turntable at 78 rpm.								
Motor switch (fig. 5, 6, or 7).	<table> <tr> <th>Position</th><th>Function</th></tr> <tr> <td>ON</td><td>Starts turntable motor.</td></tr> <tr> <td>OFF</td><td>Stops turntable motor.</td></tr> </table>	Position	Function	ON	Starts turntable motor.	OFF	Stops turntable motor.		
Position	Function								
ON	Starts turntable motor.								
OFF	Stops turntable motor.								
Stylus selector lever (RP-104(*)/UIH-2) (fig. 6 or 7).	<table> <tr> <th>Position</th><th>Function</th></tr> <tr> <td>78</td><td>Places standard groove reproducing stylus in operating position.</td></tr> <tr> <td>33-45</td><td>Places micro-groove reproducing stylus in operating position.</td></tr> </table>	Position	Function	78	Places standard groove reproducing stylus in operating position.	33-45	Places micro-groove reproducing stylus in operating position.		
Position	Function								
78	Places standard groove reproducing stylus in operating position.								
33-45	Places micro-groove reproducing stylus in operating position.								

10. Modes of Operation

To operate the equipment for any particular mode of operation, refer to the appropriate paragraph listed below.

a. Playback; reproducing recorded information (par. 11).

b. Public address; amplifying speech (par. 12).

c. Mixer; amplifying speech during playback (par. 13).

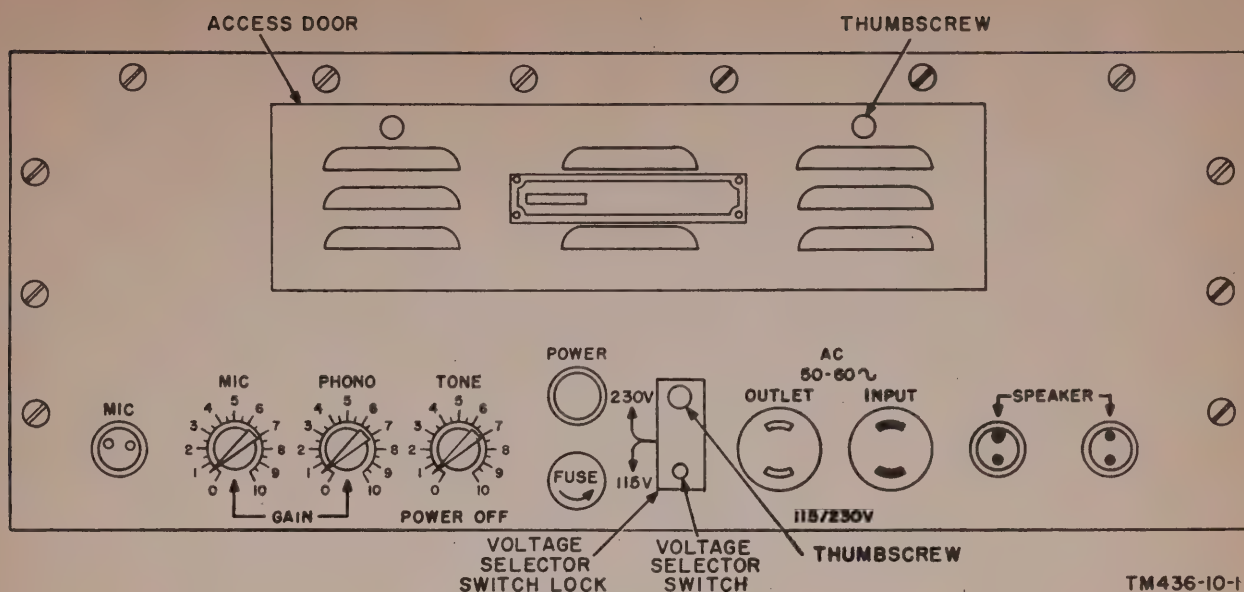


Figure 4. Reproducer, front view.

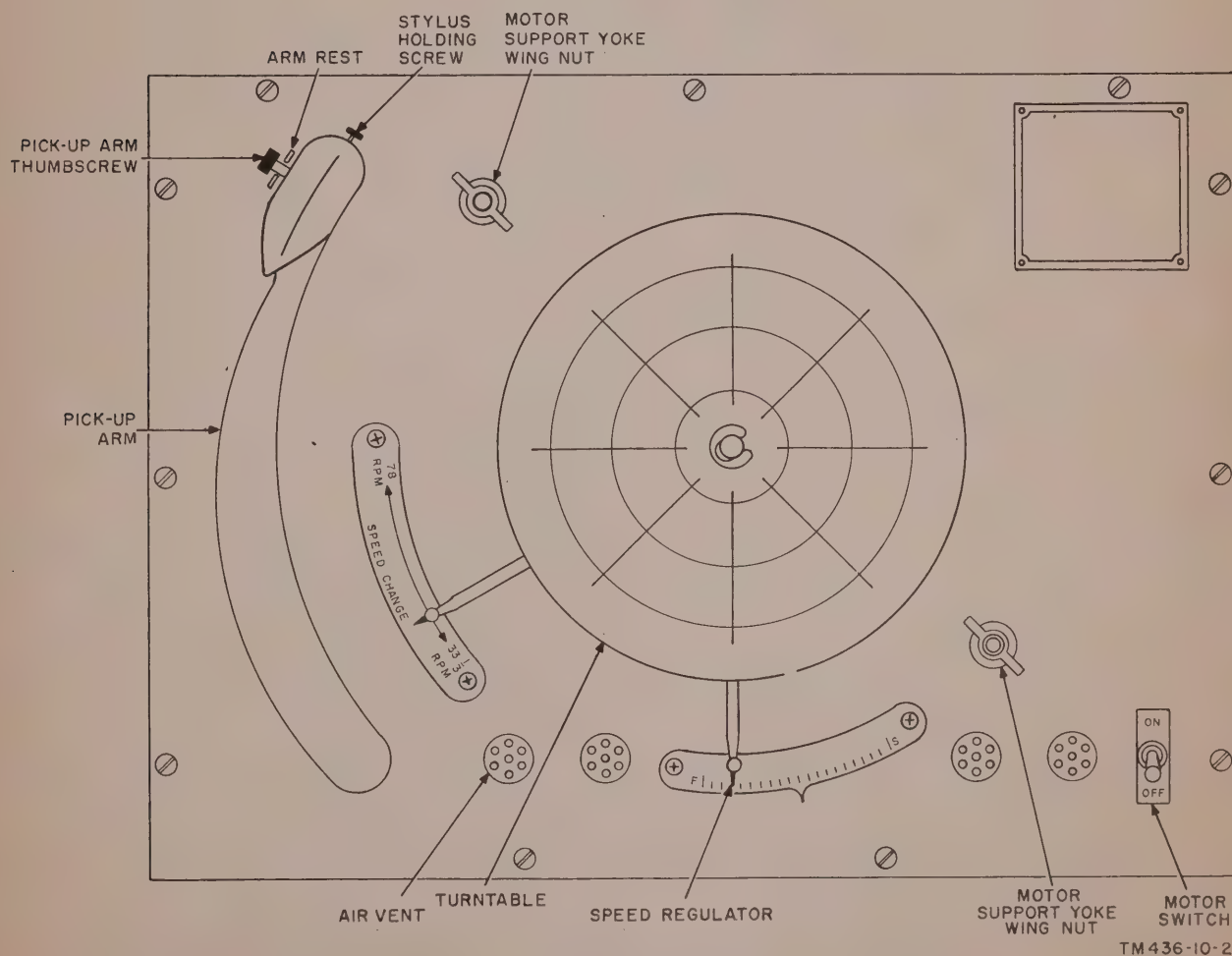


Figure 5. MX-932/U, top view.

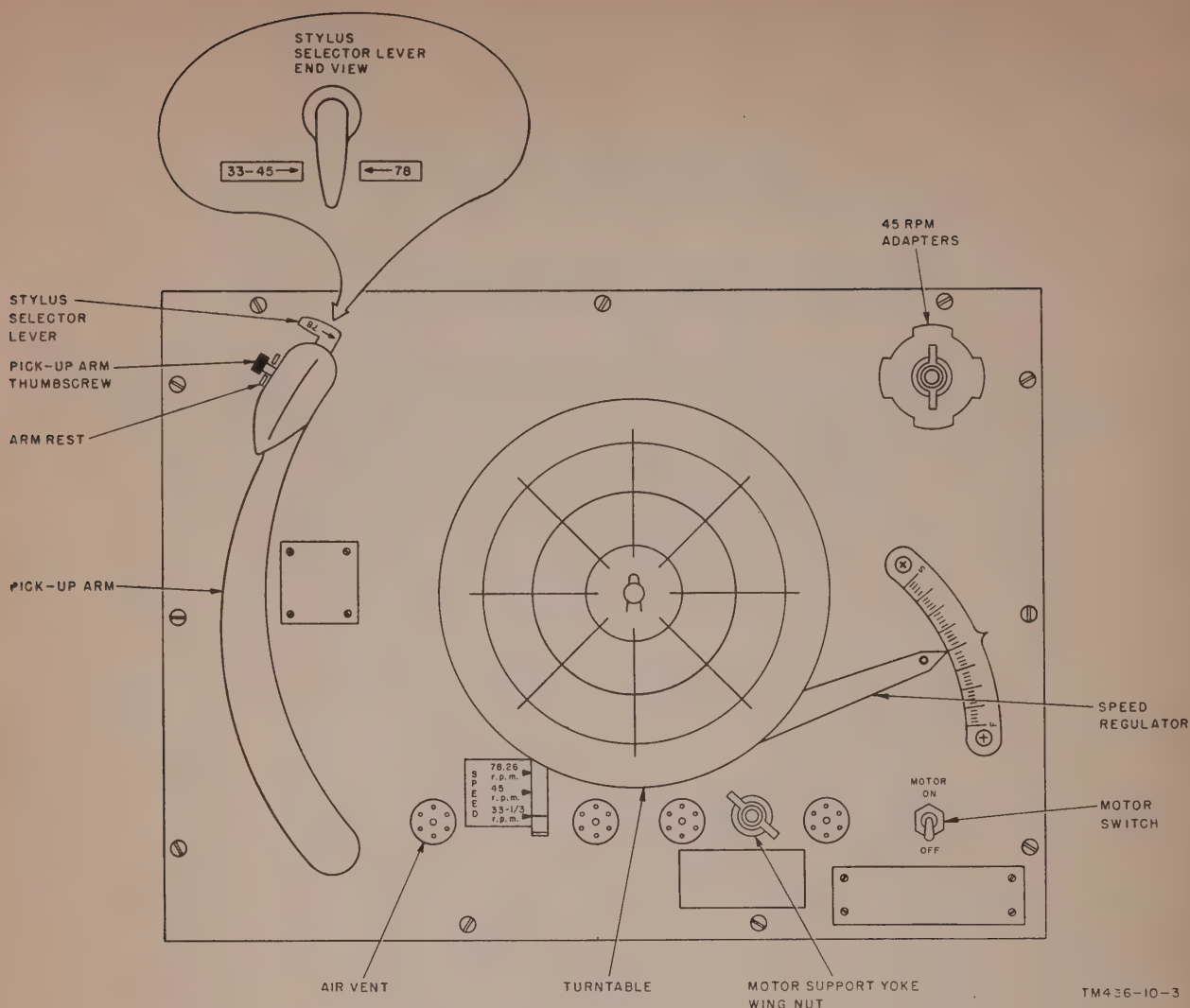


Figure 6. RP-104/UIH-2, top view.

11. Playback

To operate the public address set to reproduce recorded information, proceed as follows:

a. Starting Procedure.

- (1) Remove the stylus shield (RP-104 (*)/UIH-2). Loosen the pick-up arm thumbscrew (fig. 5, 6, or 7).
- (2) Turn the TONE-POWER OFF control (fig. 4) to its extreme clockwise position. The POWER indicator will light. Allow at least 1 minute for the reproducer to warm up.
- (3) Turn the PHONO control to 5 and the MIC control to 0.
- (4) Rub the thumb across the reproducing stylus (stylus) in the sound reproducer cartridge (cartridge). Clicking noises in the loudspeakers indicate that the reproducer is ready for use.
- (5) Move the motor switch (fig. 5, 6, or 7) to ON.
- (6) Move the speed change control to the desired revolutions per minute (rpm) position. In the RP-104 (*)/UIH-2, also move the stylus selector lever (fig. 6 or 7) to the desired rpm position.

Caution: Move the speed change control only when the turntable motor

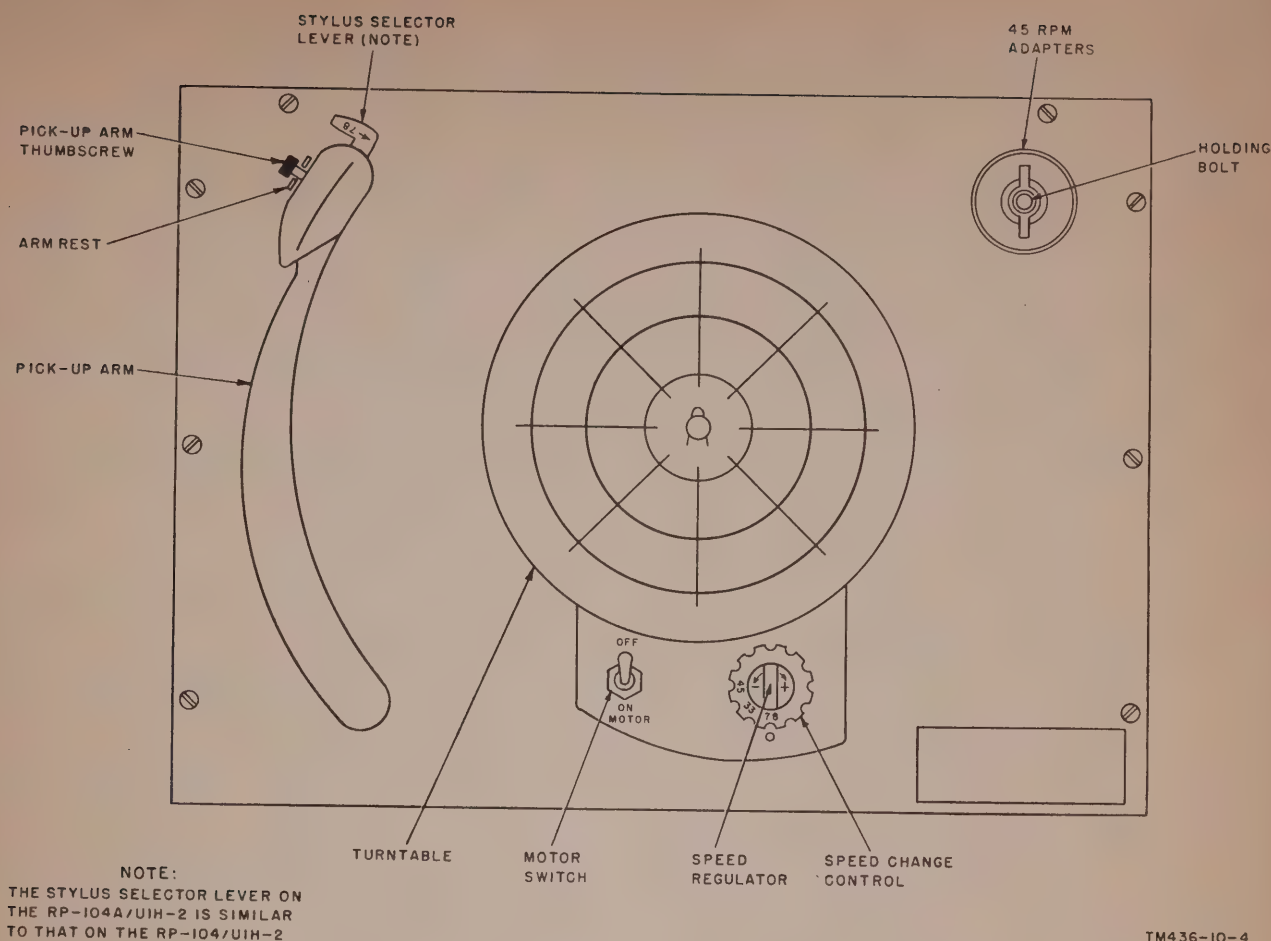


Figure 7. RP-104A/UIH-B, top view.

is running. Do not move the speed regulator since this is an adjustment which must be made by maintenance personnel. On the RP-104(*)/UIH-2, be sure that the proper stylus has been selected. A standard groove stylus will ruin a microgroove record. All $33\frac{1}{3}$ and 45 rpm records use the microgroove stylus and cannot be played on the MX-932/U. Most $33\frac{1}{3}$ rpm transcriptions (16-inch records) require a standard groove stylus. Check the record or the transcription to determine which stylus to use.

- (7) If a 45-rpm record is being used (RP-104(*)/UIH-2), insert a 45-rpm adapter into the record as follows:

- (a) Tilt the adapter until three of the four retaining lips slide into position.

- (b) Snap the fourth retaining lip into position. The adapter must be flush with the record.

b. Operating Procedure.

- (1) Place a record on the turntable (fig. 5, 6, or 7).
- (2) Remove the pick-up arm from the arm rest and gently place the stylus in the lead-in groove or at any other selected point on the record.

Note. Most records start at the rim; however, some $33\frac{1}{3}$ -rpm records start at the center. If a record starts at the center it will be indicated on the record label or title plate.

- (3) If necessary, readjust the PHONO control (fig. 4) for the volume level desired. Volume will depend on the size of the audience and the auditorium (or other area).

- (4) Turn the TONE-POWER OFF control slowly counterclockwise until the desired tone quality is obtained.
- (5) When the record reproduction is complete, do not allow the stylus to ride in the last groove longer than necessary. Gently lift the pick-up arm and replace it on the arm rest.
- (6) If another record is to be reproduced, proceed as follows:
 - (a) Move the motor switch to OFF.
 - (b) Remove the reproduced record and place another one on the turntable.
 - (c) Follow the procedures given in (2) through (5) above.

c. Stopping Procedure.

- (1) Move the motor switch (fig. 5, 6, or 7) to OFF.
- (2) Remove the record from the turntable. If a 45-rpm record has been used (RP-104(*)/UIH-2) remove the 45-rpm adapter and replace it on the holding bolt (fig. 7).
- (3) Secure the pick-up arm to the arm rest. Replace the stylus shield (RP-104(*)/UIH-2).
- (4) Turn the TONE-POWER OFF control (fig. 4) to 0. The POWER indicator will go out.
- (5) Turn the PHONO control to 0.

12. Public Address

To operate the equipment as a public address system, proceed as follows:

a. Starting Procedure.

- (1) Turn the TONE-POWER OFF control (fig. 4) to its extreme clockwise position. The POWER indicator will light. Allow at least 1 minute for the reproducer to warm up.
- (2) Turn the PHONO control to 0.
- (3) Turn the MIC control to 0.
- (4) Perform the following while speaking into the microphone:

Note. Use a natural speaking voice with the lips approximately 6 inches away from the microphone.

- (a) Gradually turn the MIC control clockwise until the desired output volume is obtained from the loud-

speakers. If a howl is heard from the loudspeakers, reposition them as far away from the microphone as possible.

- (b) Turn the TONE-POWER OFF control slowly counterclockwise until the desired tone quality is obtained. The final position of the TONE-POWER OFF control depends largely on the voice quality of the microphone user. Readjustment may be necessary during operation (b below).

b. Operating Procedure. When the microphone user begins to speak, perform the following:

- (1) Readjust the MIC control (fig. 4) as necessary to obtain the desired output volume. Volume will depend on the voice of the speaker, the size of the audience, and the auditorium (or other operating area).
- (2) Readjust the TONE-POWER OFF control to obtain the desired tone output.
- (3) Make any necessary volume and tone adjustments while the microphone is being used.

Note. The reproducer operator should remain at the reproducer while the microphone is being used.

c. Stopping Procedure.

- (1) Turn the TONE-POWER OFF control to 0. The POWER indicator will go out.
- (2) Turn the MIC control to 0.

13. Mixer Operation

To operate the public address set for both playback and public address, proceed as follows:

a. Starting Procedure.

- (1) Prepare the equipment for playback operation (par. 11a(1) through (7)).
- (2) Prepare the equipment for public address operation (par. 12a(4)).

b. Operating Procedure.

- (1) Start the playback operation (par. 11b(1) through (4)) and have the microphone user talk in a low voice.
- (2) During mixer operation, adjust the MIC and PHONO controls (fig. 4) for any of the following.

- (a) Low playback volume and high speech volume.
 - (b) Low speech volume and high playback volume.
 - (c) Fade-in or fade-out effect of either the speech or the playback.
- (3) To change a record in the course of the mixer operation, gently lift the pick-up arm and replace it on the arm rest.
- (a) Move the motor switch (fig. 5, 6, or 7) to OFF.
 - (b) Remove the reproduced record and place another on the turntable.
 - (c) Place the pick-up arm on the record.

c. Stopping Procedure.

- (1) Move the motor switch to OFF, and the TONE-POWER OFF, PHONO, and MIC controls (fig. 4) to 0.
- (2) Remove the record from the turntable (fig. 5, 6, or 7). If a 45-rpm adapter has been used (RP-104(*)/UIH-2, remove the adapter (fig. 6 or 7) and replace it on the reproducer.
- (3) Secure the pick-up arm to the arm rest (fig. 5, 6, or 7) by tightening the pick-up arm thumbscrew. Replace the stylus shield (RP-104(*)/UIH-2 (fig. 6 or 7).

Section II. OPERATION UNDER UNUSUAL CONDITIONS

14. General

Operation of the public address set may be more difficult in regions where extreme cold, heat, humidity, and moisture conditions prevail. Paragraphs 15 through 17 provide operational information that may be used to minimize the effects of regional extremes.

15. Operation in Arctic Climates

Subzero temperatures and climatic conditions associated with cold weather affect the operation of the public address set.

a. If equipment that has been exposed to the cold is brought into a warm room, moisture will gather on the equipment and cause changes in operating characteristics. Dry the equipment thoroughly.

b. Cover the public address set immediately after use to retain equipment operating temperatures for a longer time.

16. Operation in Tropical Climates

Moisture conditions are more acute in tropical, swampy areas. The high relative humidity causes condensation on the equipment when the temperature of the equipment drops below that of the surrounding air. Adequate ventilation will minimize this condition. Dry the equipment thoroughly before operating it.

17. Operation in Desert Climates

Provide means for keeping dust and sand from entering the moving parts of the public address set. Grit, resulting from the mixture of lubricant and sand, will damage the equipment. Clean more often, cover the equipment when not in use. Protect the equipment from the direct rays of the sun, if possible.

CHAPTER 3

OPERATOR'S MAINTENANCE INSTRUCTIONS

18. Scope of Operator's Maintenance

a. The maintenance duties normally performed by the operator of the public address set are given in *b* below. They do not require special tools or test equipment.

b. Operator's maintenance for the public address set consists of preventive maintenance (par. 20) and trouble shooting (par. 21).

19. Maintenance Items Required

There are no tools supplied with the equipment for operator's maintenance. The following items are required for operator's maintenance:

a. Lint-free cloth.

b. Cleaning Compound (Federal stock No. 7930-395-9542).

c. Stiff-bristled brush.

20. Preventive Maintenance

a. DA Form 11-238. DA Form 11-238 (figs. 8 and 9) is a preventive maintenance check list to be used by the operator. Items not applicable to the public address set are lined out. References in the ITEM block are to items in this

paragraph that contain additional maintenance information pertinent to the item. Instructions for use of the form appear on the form.

b. Items. The information given below supplements DA Form 11-238. The item numbers correspond to the ITEM numbers on the form.

Item	Maintenance procedure
2	Remove dirt and moisture from the cables, recorder panels, the loudspeakers, and the microphone.
5 and 6	Clean all exposed metal surfaces with a lint-free cloth slightly moistened with Cleaning Compound. Warning: Cleaning Compound is flammable and its fumes are toxic. Do not use near a flame; provide adequate ventilation.
10	Check the seating of the FUSE and the POWER indicator. Inspect the stylus for secure mounting and for excessive wear. Excessive wear is indicated by a flat spot on the stylus tip, or by too much noise in the loudspeakers during playback.

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS 26. WASHER ANTENNA FOR 2D ECHELON INSPECTIONS WASHER ANTENNA FOR 2D ECHELON INSPECTIONS 27. CHUCK FOR WORMS OPERATION 28. WASHER ANTENNA FOR 2D ECHELON INSPECTIONS WASHER ANTENNA FOR 2D ECHELON INSPECTIONS		CONDITION
IF DEFICIENCIES NOTED ARE NOT CORRECTED DURING THE INSPECTION, INDICATE ACTION TAKEN FOR CORRECTION. ITEMS 3 AND 10. PHONO CONTROL KNOB CRACKED. REPORTED TO HIGHER ECHELON FOR REPLACEMENT		
MAINTENANCE CHECK LIST FOR SIGNAL EQUIPMENT SOUND EQUIPMENT, RADIO, DIRECTION FINDING RADAR, CARRIER, RADIOSONDE AND TELEVISION (AR 730-625)		
EQUIPMENT NOMENCLATURE PUBLIC ADDRESS SET AN/VIH-2		
EQUIPMENT SERIAL NUMBER 1378		
INSTRUCTIONS This form may be used for a period of one month by using the correct dates and weeks of the month. It is to be used as a Preventive Maintenance check list for Signal equipment in actual use, or for a check on equipment prior to issue.		
1. For detailed Preventive Maintenance instructions see: a. The Technical Manual (in TM 11 series) for the equipment. (See DA Pamphlet Number 310-4) b. The Supply Bulletin (SB 11-100 series) for the equipment. (See DA Pamphlet Number 310-4) c. The Department of the Army Lubrication Order. (See DA Pamphlet Number 310-4)		
2. The following action will be taken by either the Communications Officer/Chief for 1st echelon, or the Inspector for higher echelon: a. Enter Equipment Nomenclature and Serial Number. b. Strike out items that do not apply to the equipment.		
3. Operator/Inspector will enter in the columns entitled CONDITION, on the proper line, a notation regarding the condition, using symbols specified under LEGEND.		
4. After operator completes each daily inspection he will initial over the appropriate dates under "Daily Condition for Month", then return form to his supervisor.		
TYPE OF INSPECTION		
OPER- ATOR	2/3 ECH- ELON	DATE
✓		6 APRIL 1958
		SIGNATURE
		S. P. Clitney

DA FORM 11-238
1 MAY 57

REPLACES DA FORMS 11-238, 1 NOV 55; 11-239, 11-244, 11-245, 11-246, 11-249, 11-250, AND 11-251; WHICH ARE OBSOLETE.

Figure 8. DA Form 11-238, pages 1 and 4.

LEGEND for marking conditions:

LEGEND for marking conditions.

Satisfactory, Y.
Adjustment, Repair or Replacement required, X.
Defect corrected, (X).

DAILY CONDITION FOR MONTH OF

APRIL, 1958

[illegible]

CONTINUED ON PAGE 4

Figure 9. DA Form 11-238, pages 2 and 3.

21. Equipment Performance Checklist

a. *General.* This checklist outlines a procedure for systematically checking equipment performance. All corrective measures that can be performed by the operator are given in the *Corrective measures* column. If the corrective action does not correct the fault, additional maintenance must be performed by higher echelon maintenance personnel. This maintenance is described in the appropriate technical

manual. The operator should note on the repair tag how the equipment performed and the corrective measures taken. Start at the beginning of the check list and follow each step in sequence to locate the trouble. However, if trouble is suspected in a particular area, check that point first and continue the steps in the order listed.

b. *Procedure.* Operate the public address set as described in the checklist below.

PREPARATORY	Item No.	Item	Action	Normal indication	Corrective measures
	1	MIC and PHONO controls (fig. 4).	Turn to 0.		
	2	TONE-POWER OFF control.	Turn to 0.		
	3	Motor switch (fig. 5, 6, or 7).	Turn to OFF.		
OPERATION	4	TONE-POWER OFF control.	Turn to extreme clockwise position.	POWER indicator lights.	Replace POWER indicator lamp. Replace defective fuse (fig. 4). Check power cable connections. Turn in equipment for repair.
	5	PHONO control -----	Turn to 5; rub thumb across stylus (two on RP-104(*)/UIH-2).	Clicking noises heard in loudspeakers.	Check loudspeaker cable connections Report to higher echelon for stylus replacement. Turn in equipment for repair.
OPERATION	6	MIC control -----	Turn to 5; speak into microphone.	Output from loudspeakers heard clearly.	Check microphone cable connections. Reposition loudspeakers (if howl is heard). Turn in equipment for repair.
	7	Motor switch (fig. 5, 6, or 7).	Move to ON -----	Turntable rotates -----	Loosen motor support yoke (MX-932/U or RP-104/UIH-2). Turn in equipment for repair.
	8	Speed change control---	Move to each speed position.	Turntable speed changes.	Turn in equipment for repair.

	Item No.	Item	Action	Normal indication	Corrective measures
	9	Pick-up arm -----	Place record on turntable, select proper speed, and then place pick-up arm on record.	Output from loudspeakers heard clearly.	Remove dust or dirt from record. Change record. Select proper speed change control position. Turn in equipment for repair.
	10	TONE-POWER OFF control.	Rotate from extreme clockwise position to 1, and then to desired tone output.	Tone varies from treble to bass and then to desired tone.	Turn in equipment for repair.
	11	PHONO and MIC controls.	Speak into microphone while record playback is in progress: a. Turn PHONO control to 1 and MIC control to 3. b. Turn MIC control to 1 and PHONO control to 3.	a. Speech output louder than playback output. b. Playback output louder than speech output.	a. Turn in equipment for repair. b. Turn in equipment for repair.
	12	Pick-up arm (fig. 5, 6, or 7).	Remove pick-up arm from record and secure in arm rest.		
	13	Motor switch -----	Move to OFF -----	Turntable stops rotating.	Turn in equipment for repair.
	14	Record -----	Remove from turntable.		
	15	TONE-POWER OFF control (fig. 4).	Turn to 0 -----	POWER indicator goes out.	Turn in equipment for repair.
	16	PHONO and MIC controls.	Turn to 0.		

CHAPTER 4

SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

22. Shipment and Limited Storage

Disassembly and repacking of the public address set for shipment or limited storage should be performed by second echelon personnel.

23. Demolition To Prevent Enemy Use

a. Authority for Demolition. Demolition of the public address set will be accomplished only upon the order of the commander. Use the destruction procedure outlined in *b* below to prevent further use of the equipment.

b. Methods of Destruction. Use any of the following methods to destroy the equipment.

- (1) *Smash:* Smash the reproducer, loudspeaker assembly, microphone, and records; use sledges, axes, handaxes,

pickaxes, hammers, crowbars, or other heavy tools to destroy the equipment.

- (2) *Cut.* Cut the cables and the loudspeaker diaphragms; use axes, handaxes, or machetes.
- (3) *Burn.* Burn the equipment cases, technical manual, and any other combustible items; use gasoline, kerosene, flame throwers, or incendiary grenades.
- (4) *Explode.* If explosives are necessary, use firearms, grenades, or TNT.
- (5) *Dispose.* Bury or scatter the destroyed parts in slit trenches, fox holes, or other holes, or throw them into streams.

APPENDIX

REFERENCES

The following publication contain information applicable to the operator of the public address set:

AR 380-5 Military Security (Safeguarding Security Information).
TM 11-2093-10 Code Practice Equipment EE-94-F, EE-95-F, EE-96-D, EE-96-E, and EE-96-F,

[AG 676.5 (20 Jun 58)]

and Telegraphic Code Trainers AN/FGC-T1 and AN/FGC-T4, Operator's Manual.

TM 11-2332-10 Projector PH-222-C and Still Picture Projector AP-9(1), Operator's Manual.

TM 11-5533 Code Recorder RD-60/U.

BY ORDER OF THE SECRETARIES OF THE ARMY AND THE AIR FORCE:

MAXWELL D. TAYLOR,
*General, United States Army,
Chief of Staff.*

OFFICIAL:

HERBERT M. JONES,
*Major General, United States Army
The Adjutant General.*

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Log Comd (5)
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Armies (5)
Corps (2)
Div (2)
Ft & Camp (2)
Svc College (5)
Br Svc Sch (5) except USASCS (25)
Gen Depot (2) except Atlanta Gen Depot
(None)
Sig Sec, Gen Depot (10)
Sig Depot (17)
Port of Emb (OS) (2)
OS Sup Agcy (2)
Sig Fld Maint Shop (3)
Sig Lab (5)
USA Sig Pub Agcy (8)
Army Pictorial Cen (2)
USASSA (Phila, Pa) (13)
SP Wpn Comd (5)
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JBUSMC (2)
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11-5 (2)
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11-7 (2)
11-16 (2)
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11-56 (2)
11-57 (2)
11-127 (2)
11-128 (2)
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19-256 (2)
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33-67 (2)
39-51 (2)
39-61 (2)
39-71 (2)

NG: State AG (6); units—same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

TM 11-5830-200-10/TO 31S3-3 MC364-21 REPRODUCING EQUIPMENT MC-364-D
AND PUBLIC ADDRESS SET AN/UIH-2-1958